SPECIFICATIONS

FOR

GENERAL CONTRACT

OF

U.S. WEATHER BUREAU BUILDING

To be erected at

SANDBERG, CALIFORNIA

FOR

UNITED STATES OF AMERICA

U. S. DEPARTMENT OF AGRICULTURE

WEATHER BUREAU

WASHINGTON, D. C.

GENERAL CONDITIONS.

1. STANDARD FORMS: The following standard forms accompany these specifications and are a part thereof:

Standard Form No. 20, Standard Government Form of Invitation for Bids (Construction Contract).
Standard Form No. 21, Standard Government Form of Bid (Construction Contract).
Standard Form No. 22, Standard Government Instructions to Bidders (Construction and Supplies).
Standard Form No. 23, Standard Government Form of Contract (Construction).

Bidders must follow strictly the Instructions given in Standard Form No. 22 and agree to and comply with the provisions of the several articles set forth in Standard Form No. 23. Although the several articles of Standard Form No. 23 form a part of these specifications, bidders will not fill out the contract at the present time. The successful bidder, however, will later be required to execute such contract. (See Standard Form No. 20).

2. FEDERAL SPECIFICATIONS: Federal specifications, or Government master specifications, including revision and addenda in effect on the date of issue of these specifications, must be used when applicable in connection with all materials and supplies to be furnished under the bid. Federal specifications may be secured from the Superintendent of Documents, Government Printing Office, Washington, D. C.

3. TRADE NAME: Whenever materials or articles are designated in these specifications by trade names, it will be understood that similar materials or articles may be substituted therefor if equal in quality and workmanship.

4. "OWNER" AND "GOVERNMENT": Whenever the words "owner" or "Government" are used in these specifications, they shall be understood to mean the "Secretary of the Department of Agriculture".

5. EXPLANATIONS TO BIDDERS: No oral interpretation will be made to bidders as to meaning of drawings and specifications. Requests for such interpretations should be made in writing addressed to the Chief U. S. Weather Bureau, Washington, D. C.. Any interpretations made to bidders will be in the form of an addendum to the specifications which, if issued, will be sent to all bidders.

6. VISIT TO SITE: Bidders should fully inform themselves as to the location of the site and as to the conditions under which the work is to be done. Failure to take this precaution will not relieve the successful bidder from furnishing all material and labor necessary to complete the contract without additional cost to the Government. (See Paragraph 19, Standard Government Instructions to Bidders, Form No. 22).

7. RATE OF WAGE: The following paragraph pertaining to the rate of wage shall apply:

The rate of wage for all laborers and mechanics employed by the Contractor, or any subcontractor, on the public building covered by these specifications shall be not less than the prevailing rate of wages for work of a similar nature in the city, town, village, or other civil division of the state in which the public building is located. In case any dispute arises as to what are the prevailing rates of wages for work of a similar nature applicable to the contract which can not be adjusted by the contracting officer, the matter shall be referred to the Secretary of Labor for determination and his decision thereon shall be conclusive on all parties to the contract, as provided in the Act of March 3, 1931 (Public No. 798).

8. PERMITS: The Contractor shall, without additional expense to the Government, obtain all required licenses, permits, etc. (See also Article 10, Standard Government Form of Contract, Form No. 23).

9. PREFERENCE FOR DOMESTIC ARTICLES OR MATERIALS: Preference will be given to articles or materials of domestic production, conditions of quality and price, including duty, being equal.

10. PATENTS: (See Paragraph 25, Standard Government Instructions to Bidders, Form No. 22).

11. DRAWINGS AND SPECIFICATIONS: The drawings and specifications are intended to be cooperative and work or materials called for by the drawings and not mentioned in the specifications, or vice versa, shall be furnished or performed in as faithful and thorough a manner as though fully covered by both. The drawings shall be accurately followed, preference being given to figured dimensions over scale and to large scale dimensions over small. In case of a discrepancy in the plans or specifications, or between the plans and specifications, the matter shall be referred to the Chief U. S. Weather Bureau, Washington, D. C., for correction and decision before any work is done.

The interpretation of the intent of the plans and specifications shall rest solely with the Weather Bureau whose decision shall be final.

Where on any drawings a portion of the work is drawn out and the remainder is indicated in outline, the drawn-out parts shall apply also to all other like portions of the work. Where ornament or other detail is indicated by starting only, such details shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the work unless otherwise indicated.

12. CORRECTION OF DEFECTS: If the Contractor fails to proceed at once with the correction of rejected defective material and workmanship in accordance with the provisions of Article 6 of Standard Government Form of Contract (Construction), the Government may, by contract or otherwise, have the defects remedied or changes made and charge the cost of the same against any moneys which may be due the Contractor.

13. CLIMATIC CONDITIONS: The contractor shall protect the concrete and brick work from damage by freezing weather, or other climatic conditions when necessary during construction.

14. LAWS AND ORDINANCES: The bidder will be responsible for each and every violation of any and all laws, ordinances, rules and regulations, insofar as they relate to any portion of the work contemplated in these specifications.

15. SUB-CONTRACTORS: Unless otherwise specifically stated, the bidder will be free to select sub-contractors for the work, but in all cases the sub-contractors must be capable of performing in a satisfactory manner all work undertaken by them. The bidder shall furnish the Chief U. S. Weather Bureau, Washington, D. C., with a list giving the names and addresses of all sub contractors.

16. CHECKS: All checks in connection with making deposits required to insure the return of plans, or certified checks to guarantee the execution of contract and bond, will be drawn in favor of the Disbursing Clerk, Department of Agriculture.

17. IMPORTANT: Bidder must state number of Calendar days within which the work will be completed.

18. STATEMENT: Bidder must furnish statement as to his experience and financial responsibility.

U. S. Department of Agriculture, Weather Bureau

Table of Contents

Index to Specifications.

SPECIFICATIONS FOR WEATHER BUREAU BUILDING

AT SANDBERG, CALIFORNIA.

1. General - Erect two one-story frame living quarters buildings with an office room between them and adjacent thereto as a single unit, a two car frame garage, a frame pump house, engine-generator shed and theodolite platform. Building a concrete cistern at spring site, a concrete water storage tank in the ground near the house, septic tank and cesspool as shown on the drawings. Install approximately 800 feet of pipe line from house to spring house, a power and a light circuit from house to spring house, [illegible] float switches in storage water tanks [illegible], two engine-generator sets in engine generator shed, (the contractor will not be required to furnish the engine-generator sets) electric pump in spring house and water pressure pump in the building. Installation and erection to be complete in all particulars as hereinafter specified, and in accordance with the attached drawings Nos. 1, 2, 3, 4, [illegible] 5,6,and 7.

The contractor will also be required to mount a wind vane and anemometer support on roof of office-living quarters building and furnish ladder to reach the roof; to remove ceiling projector, alidade, pedestals, and cable from station at Lebec, California, and install same at the new station. Build 375 feet of barbed wire fence, having a gate across roadway, along three sides of Weather Bureau property as required.

The contractor shall furnish all material, labor, transportation, scaffolding, etc., of every description required for the full performance of the work herein specified; excepting that material, or equipment, which these specifications specifically mention shall be furnished by the Weather Bureau.

Construction shall include all excavation, backfill, grading, concrete foundations, septic tank, cesspool, cistern, spring house, theodolite platform, plumbing, electric wiring, painting, concrete walks, sewer and water connections.

Material shall include all lumber, mill work, plumbing, fixtures, electric wiring and fixtures, roofing, motor driven water pump, water pressure pump for house, float switches, [illegible] paint, sewer and water pipe, sash, doors, etc., and all other material necessary for complete construction of the buildings as hereinafter specified, or called for by the drawings, notwithstanding such material may not be mentioned specifically herein.

2. Location - The Weather Bureau site on which these improvements are to be made is located approximately 1 1/2 miles west-northwest of Sandberg, California, and can be reached by dirt road branching off of the main highway near Sandberg.

3. Excavation - Excavate for the foundation walls, footings, piers, septic tank, etc., of the dimensions and to the depths as shown on the drawings and required by the grade. The bottoms of all trenches for walls and piers, etc., are to be made level and thoroughly tamped.

The grade line shown on the drawings is the established line to which the ground will be graded at completion.

Fill in around the walls after the cement is dry and tamp thoroughly. Grade the earth neatly away from the building.

4. Foundations - Foundations to be of concrete 8 inches thick with concrete footings 16 inches wide and 8 inches high. Top of foundation to be 2 feet above grade line. Top of footings to be not less than 10 inches below grade line. Cast iron vents shall be installed in the foundation walls at the points indicated on the foundation plan.

After forms are removed, all exposed outside foundation wall surfaces shall be plastered with a 1-2 1/2 cement-sand mortar.

5. Concrete - Cement shall meet the requirements of the U. S. Bureau of Standards Specifications Circular No. 33. All concrete shall be of the following proportions by volume:

One part cement, three parts sand, five parts gravel, broken stone or slag.

Sand shall be clean, sharp and free from dirt, lumps, soft or flaky particles, shale, or alkali and shall pass a 1/4 inch mesh screen.

Coarse aggregate may be either broken stone, gravel or slag fragments that will pass a 1 1/2 inch mesh but be retained upon a 1/4 inch mesh screen. Coarse aggregate shall be well graded from coarse to fine. Must be clean, hard, durable fragments of stone or particles of gravel free from an excess of soft, thin disintegrated or laminated pieces, dirt, vegetable or other objectionable matter. Broken slag shall be air-cooled, blast furnace slag and shall consist of angular

fragments reasonably uniform in density, weighing not less than 70 pounds per cubic foot and reasonably free from thin elongated or glassy pieces, dirt or other objectionable matter.

Water shall be practically free from dirt, oil, acid, alkali salts, organic matter or other impurities and reasonably clear. Blackish water, sea water and water carrying sewerage shall not be used.

Mixing may be done by machine or by hand, but if hand mixed, it must be done on a clean, tight mixing board. The sand shall be spread on the board in a layer three or four inches thick and the cement shall then be spread as evenly as possible on top. The mass of cement and sand shall then be turned at least three times by two men and in any event until it is of a uniform color and free from streaks of either sand or cement. The mass shall then be spread out again and the coarse aggregate spread over the top. The batch shall then be soaked with about one half to three fourths of the quantity of water to be used. The mixing shall be continued until the mass is uniform, water being added to the dry spots during the mixing until the desired consistency is obtained.

Concrete shall be placed in the forms before the cement takes its initial set and shall be well tamped, spaded, rodded, or forked in place. Horizontal top surfaces shall be finished level, smooth and even. Forms shall be rigid and unyielding, of proper dimensions and shape, and shall remain in place at least thirty-six hours. Immediately upon removal of forms, all voids shall be neatly filled with cement mortar. No concrete shall be placed in water or during freezing weather unless properly protected.

6. Lumber - Unless otherwise specified all lumber shall be No. 1 Douglas fir or long leaf yellow pine or equal. Unless otherwise stated, commercial sizes are given - actual cross sections being somewhat smaller.

7. Sills, Central Girder, Girder and Porch Piers - Foundation sills to be 2" by 8" laid flat on foundation walls with 2" by 10" header spiked to ends of floor joists. 2" by 8" flat sills to be anchored to foundation by galvanized anchor bolts 3/4" by 12" placed in the concrete one foot from each corner of the building (making two bolts at each corner) and in between at intervals of not more than ten feet. Before plading sills, the concrete wall shall be covered with a 1/4" layer of 1-2 1/2 cement-sand mortar of medium consistency. As soon as placed, this shall be covered with an 8 inch strip of three ply tar paper.

Central girder, 6" by 10", may be of wood built up of three pieces of 2" by 10", or 8 inch - 18 lb. steel eye beam. Center girder posts and front porch piers to be either brick or concrete 12" square with 16" bases set 18 inches into the ground.

8. Floor Joists - 2" by 10" spaced 16 inches on centers, to be doubled cross-bridged with one double row of bridging for 8 to 16 ft. spans. Bridging to consist of 1" by 3" pieces of sound wood cut to fit and securely nailed before the floor is laid. Floor joists shall be double under the walls between living quarters building and the office room as shown on foundation plan.

9. Flooring - All floors except the attic and porch floors shall be double, with red rosin paper between the sub-floor and the finished floor. The red rosin paper shall weigh not less than eight pounds per square. Sub-floor 1" by 6", No. 1 common shiplap laid diagonally. Finished floor 13/16" by 3 1/4" clear vertical grain fir. Attic floor of 1" by 6" fir or pine, T and G, or shiplap laid tight on red rosin building paper. Porch floor 1" by 4" T. and G. No.2 Douglas fir.

10. Studding, Ceiling Joists, and Roof Rafters - Studding to be 2" by 4" spaced 16" on centers, double studding at sides of windows and doors to top of opening, cross members over doors and windows to be double 2" by 4" resting on the short studs on the inner side of the window and door openings. Three studs at corners placed as shown on the drawing, single 2" by 4" plate at bottom, and double plate at top of all walls and partitions. Bearing partitions and outer walls shall be braced once in their height with a horizontal 2" by 4" brace well nailed. Ceiling joists to be 2" by 6" spaced 16" on centers. Rafters to be 2" by 6" spaced 24" on centers, with 1" by 10" ridge pole.

11. Wall and Roof Sheathing - To be 1" by 6", or 1" by 8" shiplap of No. 2 Douglas Fir, or No. 1 N.C. pine. Wall sheathing to be nailed diagonally and covered with heavy tarred felt weighing not less than 24 lbs. per square.

12. Roof Covering - Roof shall be covered with 10-inch red slate surfaced, fire resistant asphalt strip shingles as per Federal Specification No. 296, four in one strip about 10" by 32 1/2", laid four inches to the weather

and appearing when laid as individual shingles, guaranteed by the manufacturer for a period of not less than fifteen (15) years, not be affected by climate, decay, warp, curl, or to lift in the wind.

A Toncan Metal, or equal, ridge roll shall be used over the ridge of the house and over the porches, galvanized iron balls or finials shall be used to close the ends of the ridge roll.

I.C. grade roofing tin shall be used in the valleys formed by the porch roof with the main roof and painted to match the red asphalt shingles.

13. Flashing - Where the office roof meets the side walls of the building tin flashing shall be used extending not less than 8" high behind the drop siding on the walls. All chimneys to be flashed and counter flashed with roofing tin. The flashing shall extend well under the asphalt shingles and turn up on the chimney not less than 6". Counter flashing to extend down to within an inch of roof and be secured in a raked joint between the bricks which shall be well pointed up with cement mortar.

Flashing shall be placed around all vent pipes and at such other points as may be required.

14. Siding - To be plain drop siding, 1" by 6" No. 1 cypress, California red wood, or clear fir.

15. Outside Trim - Corner boards, frieze, columns, water table, mouldings, porch etc., to be clear Douglas fir, cypress, or California red wood.

16. Door and Window Frames - Select Douglas fir or cypress 1" by 4" outside casing with select oak sills for doors; window frames furnished complete with pulleys, drip-caps; etc., the half circle attic windows (two) shall have hinged sash to provide ventilation. Door and window frames shall be for use with 7/16" interior wall board. All window and door frames of standard construction, fully rabbeted except that inside door frames may have stops instead of rabbeting.

17. Window Sash - Standard check rail, top sash cut to six or eight lights, clear white pine, clear DS glass firmly tacked with points and puttied. Size 24" wide by 26" high except as otherwise shown. All sash to be hung with Silverlake or equal sash cord and proper weights. Each window shall be provided with a suitable sash lock and the lower sash provided with suitable flush sash lifts. The half circle windows in the attic shall be 2'-6" by 16" glazed with four lights

of clear glass.

18. Hardware - All hardware to be brass electroplated. Sash locks of standard design, sash lifts to be flush mounted type, door hinges 4" by 4" loose pin, butt type, for at least four screws on each half. Front doors of office and dwellings to have locks of the single unit type, having a pin tumbler cylinder dead bolt, operated by key from the outside, and a latch bolt operated by knob from both sides. All other doors to be equipped with mortised locks of the conventional type.

19. Doors - The three front doors to be clear fir or white pine, upper half glazed double strength, size 3' by 7' by 1 3/4". Rear office door and kitchen doors to be clear fir or white pine, upper half flazed double strength, size 2' -8" by 6'-8" by 1 3/4". Inside doors, unless otherwise shown on the plan, to be clear fir 2'-6" by 6'-6" by 1 3/8", five cross panel.

20. Porches and Steps - Porches to be 6' by 12' with three built up box columns at the two front corners, set 12 inches apart. Columns to be 8 inches square of 7/8" clear Douglas fir, cypress, or California redwood. A light frame trellis shall be built between the columns of 7/8 by 2 inch material having two vertical pieces and four cross members. There shall be four of these; two on the front and one at each end of each porch. Floors to be 1" by 4" T and G No. 2 Douglas fir with a slope of 1/4" to the foot away from the building. Overhead lining 1/2" by 4" double "V" or beaded ceiling. Roof as shown on the drawings. A light banister 3 feet high shall be built across each end of the porches as shown.

Wooden steps shall be provided at the front of the porches and in front of the office and kitchen doors. The front steps being 7 feet long; those at the rear office door and at the kitchen doors being 3 feet long. Treads to be five quarter material, stringers 2" by 10", risers not more than 7 1/2 inches. The office steps and kitchen steps shall have a wide step, or stoop, at the top 2 feet wide full width of steps.

21. Interior Trim - Inside window and door trim clear Douglas fir or California redwood back band type, casings 3/4" by 3 5/8" with 1 1/8" by 1 1/8" backbands as shown on the drawings. Baseboard 3/4" by 7 1/4", top inner edge Beveled about 45 degrees, 5/8" by 3/4" base shoe moulding nailed to floor; not to base board. All walls and ceilings to be paneled with 3/4" by 3" clear Douglas fir or California redwood square edge panel strips.

22. Interior Wall Board - 7/16" "Celotex" or "Masonite" or equal for all walls and ceilings, including closets. Wall board to be nailed with 1 1/2" roofing nails with 3/8" heads spaced 3" apart along edges and 6" apart along intermediate members, provided that all exposed nailings, finishing nails 1 3/4" long shall be used, spaced 3" apart and driven at an angle.

23. Shelves - Four shelves in the kitchen pantry to be 12" wide about 12" apart, the bottom one being about 3 1/2 feet from the floor. Hall closet to have three shelves full width and depth of closet, bottom one being about three feet from floor. Bed room closets to have two 12" shelves full width of closet, bottom shelf to be about 4 1/2 feet from floor. Each bed room closet to have a coat rail and 12 coat hooks. Office closet to have one 16" removable shelf across back about five feet above floor and a coat rail with 6 hooks. Trap doors shall be built in the ceiling and floor of the office closet to permit access to plumbing and attic.

24. Kitchen Cabinets - Similar and equal to Gordon Van Tine Company's No. 2A 7109 shall be built in as shown on the plan. The cabinets shall be staunch and well made, with frame and exposed parts of No. 1 white pine. Bottom doors shall have white pine stiles and rails with fir panels. Top doors shall be glazed with 3 or 6 lights of clear glass each. Work table tops shall be 1 1/4 inches thick, 19 inches wide by 50 inches long, smooth and finely finished. Size of cabinet 4 ft. wide and 8 ft. high. Bottom section 36" high and 17" deep with two utensil drawers and double door cupboard with shelf for pots and pans. Top section 5 ft. high and 11" deep with four shelves. Cabinets shall be complete with hinges, drawer pulls, and latches. The backs will be formed by the partition wall.

25. Plumbing Fixtures - Two corner sinks 20" by 27", solid cast iron finished in white porcelain enamel, having drain board and end piece, drain board 20" by 21" approximately, drain board, back and end piece to be integral with sink. Fittings to include 1/2" flanged faucets with handles marked "Hot" and "Cold", boltless strainer, and 1 1/2" trap to floor or wall. All fittings to be solid brass nickle plated.

Two bath tubs five feet long by 30" wide with 3" roll rim cast iron leg style, body cast in one piece, porcelain enamel on inside and over rim, outside coated with one coat of iron filler paint, complete with flanged faucets with handles marked "Hot and "Cold", over-flow and supply pipes to floor, all fittings solid brass nickle-plated.

Three wash bowls to be of the wall type, approximately 10" by 14" bowl, with 17" by 19" wall slab, one piece cast iron, porcelain enamel inside and over outside rim; faucets with handles marked "Hot and "Cold". All fittings to be nickle-plated solid brass.

Three toilets of the low wall tank type. Porcelain tank, vitreous china bowl, bakelite seat with nickle-plated brass bar hinge. Tank to be of vitreous china, equipped with brass flushing mechanism, copper ball float, with compound lever ball cock, brass overflow and refill tube, ball flush valve. China lever pull, and nickle-plated brass supply pipe to floor.

26. Plumbing - To meet the requirements of the National Building Code. All soil pipe in or under the building to be extra heavy cast iron, water supply pipes and fittings to be heavily galvanized. There shall be a 4" vent or "stack" from the soil pipe through the roof from the lavatory and baths, and a 2" vent for the kitchens as shown on the drawings.

27. Electrical Fixtures - Store or office type bronze finish, close to the ceiling type with 12" frosted white flat glass bowl and keyless socket similar to Ivanhoe No. M 594, with No. 5680 Genco bowl shown in Catalog No. 700 A, for the office room and living rooms; three each in the office and two each in the living rooms, placed as shown on the plan. The office lavatory, bed rooms, baths and kitchens shall have the same fixtures with 8" frosted white flat glass bowls. A ceiling type Japanned finish porch light with 8" frosted glass bowl, shall be installed as shown on the porches, controlled by a switch near the outside door of the living room.

Each light in the office and living rooms shall be controlled by a separate switch located as shown. All switches shall be of the flush wall type. Thirteen twin type service outlets to be installed in the baseboard at the points indicated on the plans; five in each living quarters building and three in the office.

All wiring to be in metal; flexible armored BX to be used in the attic and in the walls, pressed steel boxes must be used for all light and switch outlets. Ceiling outlet boxes to be attached by screws to a 1" by 3" piece of wood securely nailed between the ceiling joists with the edge of the box projecting 1/2" below ceiling joists, each to have 3/8" fixture studs for attaching fixtures, all meeting the National Fire Underwriter's code.

28. Distributing Cabinet and Float Switches - An eight circuit distributing cabinet, consisting of a pressed steel box 14" by 18" by 4", and four, 30 amphere, double pole, double branch, two wire feed, fused switches, shall be installed in the rear wall of the office room as shown on the plan.

Two No. 6 D.B.R.C. conductors shall be run in 1" galvanized conduit under ground from engine-generator shed to distributing cabinet. Conductors shall be connected in the engine-generator shed to the hinge posts of a 60 amphere, double pole, double throw, fuseless switch mounted in a pressed steel box located on the west wall of the engine-generator shed.

A float switch shall be installed in each of the cisterns, the one at the house to be securely bolted to the concrete sidewall near the top of the cistern, as shown on the drawing; the other to be placed above the cistern in the spring house. Both switches are to be installed in the power circuit leading from distributing cabinet to pump motor at the spring. The switch at the spring house is to function as a safe-guard against the pump running wild when the spring cistern is drained.

Float switches to be os sufficient capacity to directly handle the motor circuit, drip and splash proof, similar and equal to General Electric Co's. Type C R 2931, Form D as shown on page 35, Cat. No. GEA 606A.

29. Screens - Screens for all doors and windows to be furnished and installed. Screen doors to be clear fir 1 1/8" thick, with 16 mesh bronze wire equipped with spring hinges and mortise locks. Window screens to fit the entire lower half of the window and to be installed on "T" rails inside theoutside casing in such a manner that insects cannot enter the building between sash and screen when screens are in use; frames to be of clear fir, or cypress, 3/4" thick by 2" wide with mortised and tenoned joints and fitted with 16" mesh bronze wire.

30. Chimneys - Erect three brick chimneys, having 8" by 8" terra cotta flue linings, as shown on the drawings, of sound, hard, well burned brick laid in cement mortar. Each section of terra cotta must be laid plumb, set in cement mortar, and the inside joints struck smooth. In no case shall the brick work be less than 4"; all brick to be laid flat and the joints well filled and struck. A 6" terra cotta thimble shall be placed in each chimney as shown on the plan. All

wooden framing around chimneys to be in accordance with National Board of Fire Underwriter's requirements. The brick in the part of the chimneys extending above the roof shall be of a uniform color and mortar joints pointed to give a pleasing appearance. All brick work shall begin at the ground. The chimneys shall be covered with wall board nailed to studs turned with flat sides to chimney and independent of the brick work. Asbestos filler shall be used around the thimble, the Celotex or wall board being cut back at least three inches.

31. Hot Water Heaters and Gas Outlets - The contractor shall pipe both living quarters kitchens for use of "rock gas". Gas pipe shall terminate on outside of building at sufficient height for a standard installation of "rock gas" cylinders. Furnish and install a galvanized hot water boiler of 30 gallon capacity, tested to 200 pounds pressure and guaranteed to stand a working pressure of 85 pounds, complete with cast iron stand, hot and cold water connections and a gas heater equipped to burn "rock gas" in each of the kitchens of the office-living quarters building.

32. Water Pressure - Tank Unit - To be of sufficient capacity to maintain 20 to 40 pounds pressure in plumbing system of two one-story 4-room houses. To be operated by an electric motor for use with 110 volts direct current. Pressure tank to have a capacity of 70 gallons. Shall be equipped with an automatic control switch for starting the pump when the pressure falls to 20 pounds and to stop the pump when the pressure reaches 40 pounds. Air regulator to be provided to automatically maintain the proper volume of air in pressure tank. Pump to be self-oiling, similar and equal to outfit No. 6821-70 as manufactured by Fairbanks Morse and Co.

33. Spring House Pump - Shall be of sufficient capacity to deliver not less than 500 gallons of water per hour. To be operated by an electric motor, 110 volts direct current, of sufficient size to lift the water from the pump level 210 feet plus friction through a pipe line of 1 1/2 inch galvanized pipe approximately 800 feet long. Pump to be self-oiling, similar and equal to outfit No. 6001-M manufactured by Fairbanks Morse and Co., Bidders must furnish cut and description of the pumps they propose to furnish.

34. Spring House - A concrete cistern shall be constructed at the spring [illegible] as shown on the drawing, having a concrete platform for the pump, which shall be covered by a frame structure of the size and design as shown, and as required by the grade. Cistern walls, foundations, and side walls, below the ground shall be of concrete 6" thick. If required by the grade the

rear gable wall shall be of concrete construction as shown on the drawing. Frame construction shall consist of 1" by 6" dropsiding on 2" by 4" studs spaced 24" on centers. Roof rafters and tie beams to be 2" by 4" spaced 24" on centers. Roof covering to be 7' lengths of 26 gauge 2-V crimped galvanized steel roofing, nailed with 1 1/2" galvanized roofing nails with lead washers.

A four light window consisting of a 2' by 2'-5" barn sash and a 2'-6" by 6' batten door, built up of 1" by 4" T. and G. flooring shall be provided in the front wall as shown. Door shall be well built with full 1" by 6" battens and "Z" bar, hung with two extra heavy galvanized barn hinges and provided with galvanized hasp and clevis for padlock.

Frame construction to be anchored to concrete walls by four 5/8" by 12" galvanized bolts cast in place as shown on the drawing.

All wood work to be given three coats of paint. Sidewalls to be finished in white, with lead color trim. Metal roof to be treated and given two coasts of metallic red, same as engine-generator shed. (See paragraph No. 41).

35. Pipe Line - Install pipe line from pump in spring house to storage cistern in rear of office-living quarters building of 1 1/2" galvanized standard water pipe. A 1 1/2" gate valve and union shall be installed in the line near the pump in the spring house. The use of 90 degrees ells shall be restricted as much as possible. Pipe line shall be placed in the ground at least 18" below the surface.

36. Water Storage Cistern - Construct a cistern 4' by 6' inside, of water proof [illegible] concrete to the rear of office room approximately as shown on the "Arrangement of Building Sketch" on the drawings. Cistern shall be circular having 6" walls and bottom, a sharp angle shall be avoided at the junction of bottom with side walls. The water proof concrete shall consist of a rich mix of the following proportions:

1/10 part hydrated lime
1 part portland cement
2 1/2 parts fine sand
4 parts clean gravel
Water to produce a sluggish flowing consistency.

Particular pains shall be taken with the mixing to produce a dense concrete. The walls shall be poured in one operation. The joint between bottom and side wall must be made water proof by careful pointing up as soon as the concrete

has set. All voids shall then be promptly filled and pointed up and the entire surface brushed to a neat finish.

A 6" concrete slab top shall be provided having a 24" square man hole near one side as shown on the drawing.

37. Overhead Power and Light Lines - Erect approximately 800 feet of overhead line on poles and brackets from office-living quarters building to spring house consisting of two circuits of No. 8 weather proof wire. The power line shall be connected to the float switch in the water storage cistern at the house end of the line and to the low water switch in the spring cistern. The light circuit shall terminate at the ceiling projector light which shall be located near the spring house. Ceiling projector to be removed from the present Weather Bureau station at Lebec. The switch pedestal to be removed from Lebec and installed near the office-living quarters building, shall be installed in the projector light circuit. The exact location of projector light and switch pedestal to be selected by an official of the Weather Bureau.

38. Theodolite Platform - Erect an observer's platform 7' square on four 6" by 6" posts eight feet above ground, having a stairway leading up to the platform and a windbreak five feet high on all four sides. The platform shall be so constructed that the instrument will be independent of the platform on which the observer stands. This shall be accomplished by building an independent tripod platform in the center on three 6" by 6" posts in such a way that there is no connection between the two above ground. The three posts shall be placed in the form of an equilateral triangle, about 36" from center to center and rigidly braced. Tripod platform shall consist of three 2" by 4" by 18" pieces, as hereinafter described, securely spiked to the tops of the three posts and braced by two 2" by 4" knee braces. Observer's platform shall consist of five quarter decking 6" wide laid with a 1/2" space on 2" by 6" joists.

The 2" by 4" by 18" tripod foot blocks shall be spiked to the tops of the inner posts in a common horizontal plane flush with the flooring of the observer's platform. The observation point will be the common center of the equilateral triangular inclosure. The major axis of the foot blocks shall pass through this point.

A piece of 2" by 6" shall be spiked between one of the central posts and the tie piece opposite it to carry a No. 0

galvanized screw eye, which shall be located exactly at the mid-point of the triangular inclosure. A square hole approximately six inches square shall be cut in the platform directly over this point.

The steps shall be 30" wide with 2" by 10" stringers and 2" by 6" treads having a hand rail on the left side as shown on the drawing.

All posts shall be set 18" into concrete footings 14" square and 24" deep. The four outer posts shall extend five feet above the platform froming corner posts for the windbreak which shall consist of 1" by 6" drop siding reinforced by two 2 by 4s nailed flat and equally spaced between the corner posts. A 1 1/4" by 3" beveled cap shall be placed around the top of windbreak covering the edge of the drop siding and the ends of the 2 by 4s.

Entire platform shall have three coats of paint. The priming coat shall be applied promptly upon erection. Nail holes and other imperfections shall then be filled with putty, after which all shall be given a body coat of approved lead and zinc outside white. The drop siding shall then be given a finish coat of outside white; the platform, posts, steps and trim to be finished in lead color.

39. Paint - Paint shall be best quality pure white lead, zinc and linseed oil, conforming to Federal Specification No. TT-P-36(formerly No. 10b) putty, woodfiller, stain, etc. Outside of structures will be given three coats of paint; one priming coat, one body coat and a finish coat. Building to be painted white with lead colored trim. Floors (except attic, which will not be painted) shall be filled with paste filler and waxed; inside doors and trim shall be stained fumed oak, and shellaced and rubbed down with mineral wool and varnished. All outside window sash shall be painted white. Screens shall be stained fumed oak and varnished with spar varnish. The wall board walls will not be painted. Porch floors and steps shall be primed and given two additional coats of lead colored porch or deck paint.

All outside woodwork including doors, windows, window casings, and aprons shall have the knots killed with shellac or turpentine immediately before applying the priming coat and given a priming coat of approved white lead and zinc outside white paint. The priming coat shall be applied promptly upon erection. Nail holes and other imperfections shall then be filled with putty, after which all shall be given a body coat

of approved lead and zinc outside gloss white conforming to U. S. Master Specification No. TT-P-36 (formerly No. 10b).

For priming coats reduce the approved gloss paint in accordance with approved instructions given by the paint manufacturer, or by adding for use on soft porous wood about one-half gallon of raw linseed oil and one pint of turpentine per gallon of paint; for use on hard or resinous wood add about one pint of raw linseed oil and one-fourth gallon turpentine per gallon of paint; for body coats add about one pint of turpentine per gallon of paint; for finish coats use the paint as it comes in the container. Dryer shall not be added to any ready mixed paint for any purpose.

Ample time must be given for each coat of paint to dry hard before the next is applied. Not less than three days for wood surfaces and one week for metal surfaces, shall be allowed for one coat to dry before the next is applied.

All surfaces must be thoroughly dry, clean and free from scale, grease, rust, dust and dirt before applying paint. No painting shall be done in cold, damp, foggy, dusty or frosty weather or when the air temperature is below 50 degrees Fahrenheit.

40. Garage - Erect a two car frame garage 18 feet by 20 feet on concrete piers of the size indicated on the drawing and located as shown. Each pier shall have a 5/8" by 12" galvanized iron bolt cast in the top for anchoring the wall plates. Bottom wall plates to be 4" by 4" halved at the corners. Walls to be 1" by 6" plain drop siding on 2" by 4" studs spaced 16" on centers. Corners to be wind braced by diagonal 2" by 4" pieces spiked to the studs; upper ends being spiked to corner posts and lower ends to bottom plate.

The front of the garage shall have two sets of standard 4 by 8 feet unglazed double doors. Doors to be hung with three extra heavy galvanized "T" hinges, each side having not less than four screws. One door of each set to be provided with suitable fasteners on the inside and the other to be provided with a hasp and clevis of galvanized iron for locking with a padlock. A four light window shall be placed in each side wall near the back, the sash being provided with guides so that it may be opened or closed at will. Roof rafters and tie beams to be 2" by 6" roof rafters spaced 24" on centers, tie beams 48" on centers with 1" by 6" struts from mid point to roof rafter above. Roof sheathing to be 1" by 6" shiplap covered with 10-inch red slate surface, fire resistant asphalt strip shingles, laid four inches to the weather.

Side walls to be given three coats of white paint. Doors and trim to be lead colored.

A concrete floor 4" thick, having a slope of 2" toward the front shall be laid in the garage, top surface to be floated and troweled to a smooth finish.

41. Engine-Generator Shed - The contractor shall erect a shed, 10' -4" by 14' -2" in plan, with a gable roof, on a concrete foundation as shown on the drawing. Two cast iron brick vents 8" by 11 1/2" shall be placed in the foundation at each end of the building to provide for ventilation under the floor. The shed shall be anchored to the ground by four cast iron eight-inch cone anchors or equal with galvanized steel 1/2 inch diameter rods, sufficiently long to reach a point four feet below ground surface and fastened to the sill or studs at each corner of the building as shown on the drawings.

Sills shall be 2 inches by 6 inches laid flat, floor joists 2 inches by 8 inches and the studs 2 inches by 4 inches, all S4S, spaced as shown. The framing lumber throughout shall be clear fir western pine or equivalent approved lumber. Floor joists and headers must not be closer than 1 inch to concrete engine bases and where joists are cut to accommodate a base they shall be terminated by doubled 2" by 8" headers between doubled joists. The flooring shall be single 1" by 4" T. and G. flat grained fir or yellow pine blind nailed to the joists. Floor boards must not be laid against the engine base. A space must be left between the boards and base and the gap covered by 1" quarter round moulding installed around each base. An approved metal floor or subway grating similar and equal to Blaw Knox Type G.G., and not less than 8" by 12" in size shall be installed in front of the engine-generator below the radiator as shown on the drawing. The top of this grating shall be flush with the floor. Galvanized nails shall be used for fastening the outside "V" crimped steel sheets of the sides and roof. Lead washers shall be used between nail heads and all outside metal sheets. Ungalvanized finish nails shall be used for all wood trim. Finish nails shall be set. Nail holes and other imperfections shall be filled with putty after the first or priming coat of paint.

The sides and roof shall be covered with No. 26 gauge galvanized 2-"V" crimp steel sheets with galvanized round roll ridge cap, all as shown on the drawing. Wood "V" nailing strips shall be used under each "V" crimp. The ridge cap must be terminated at both ends of the shed by a weather-proof cap. No. 28 guage galvanized steel sheets shall be used for flashing and trim at the gables and eaves, bending the sheets to the required shape as shown on the drawings.

The building shall be lined with No. 28 guage galvanized beaded steel sheet. The wall sheets shall be in eight foot lengths laid vertically and securely nailed to studding and furring with common nails spaced about 8 inches apart. The ceiling sheet shall run with the ridge and be securely nailed by using 2" by 2" furring headers substantially attached to the ceiling joists. Furring headers shall be spaced not over four feet apart and so as to fall at end joints of sheets. Six inch diameter galvanized pipe ventilators shall be installed at each end of the building, one in each end near and below the ceiling and the other above the ceiling near the ridge. A total of four ventilators. All ventilators shall be soldered at both ends to the walls and covered with No. 16 mesh galvanized fly screen over which shall be placed a protective screen of No. 12 wire screening 2 by 2 mesh soldered to the building on the outside.

A fresh air duct shall be provided between the inner and outer sheathing for taking air from under the eaves of the building and conducting it to the space under the floor. The duct shall be located on the windward or north side of the building and terminated on the outside by 16 mesh galvanized fly screen covered with heavy galvanized mesh No. 12 wire screening 2 by 2 mesh. The opening shall be at least sixty square inches in area.

Sheet metal edges shall be securely nailed with one inch roofing nails spaced about 2 inches apart.

Frames and plain trim shall be of clear yellow pine, cypress or approved equivalent lumber of good quality. Braided sash cord and weights, of correct size, shall be installed for upper and lower sash in each window. Windows shall be fitted with sash locks and 3 1/2" flush sash lifts.

The building shall be equipped with a 2' 8" by 6' 8" door opening outward, which door, including hardwood door sill, shall be cut and properly fitted on the job and must swing accurately and true. The door shall be panel type, (glazed four lights) of No. 1 best quality clear cypress or approved equal lumber with 1-3/4" stiles and rails and 1/2" panels. The door shall be hung with three 4 1/2" tight pin butts, and equipped with a mortise lock of the conventional type. The contractor shall furnish and install a cylinder rim deadlock, similar and equal to No. 2 Yale Catalogue No. 25 (with mortise angle strike).

All hardware, except as otherwise specified, shall be steel with a brass electroplated finish of good quality.

Windows and door shall be effectively flashed. Windows shall be protected by heavy galvanized No. 12 wire screening 2 by 2 mesh (i.e., two meshes per inch).

A ceiling light consisting of a standard four inch outlet box; a pressed or spun canopy with medium screw base keyless socket; the canopy and socket similar and equal to Benjamin No. 26002, (Electrical Appliance Co., Catalogue No. 60, page 306),and a 12" RLM dome reflector similar and equal to Benjamin No. 26012 shall be installed in the center of the shed. A single pole wall switch shall be installed at a point conveniently accessible upon opening the powerhouse shed door to control shed light.

Upon completion, the outside metal parts shall be given a priming coat of approved metallic red and oil mixed 7 pounds of metallic red per gallon of raw linseed oil followed by three coats of approved lead zinc and oil white paint for the side walls. The roof shall be given an additional coat of metallic red which shall be the finish coat.

Before painting galvanized iron surfaces they shall be treated as follows: In one gallon of soft water dissolve two ounces each of copper chloride, copper nitrate, and sal ammoniac, then add two ounces of commercial muriatic acid. This should be done in an earthen or glass vessel, never in tin or other metal receptacle. Apply the solution with a wide flat brush to the galvanized iron, when it will assume a dark, almost black, color, which on drying becomes a grayish film, preventing the paint from peeling on the galvanized metal. Or a commercial galvanized iron priming solution of approved quality similar and equal to "Glidden No. 15 Galvanized Iron Cleaner" formula "67-T-15" may be used, but consent of the Weather Bureau inspector must be obtained prior to using any such commercial solution. The treatment shall be allowed to stand at least 12 hours and the surface then dusted off before applying the metallic priming coat.

The metal work inside the building shall be painted with one flat body coat of an approved lead and zinc inside white paint followed by a final gloss coat of approved lead and zinc inside white.

42. Engine-Generator Sets - The Government will turn over to the contractor two engine-generator sets, together with one 515 -gallon fuel tank, one steel cradle, necessary pipe and fittings, exhaust pipe and muffler, and the contractor shall furnish all other material required, including anchor,

or holding down holts, and install in power house shed as shown on the drawing, complete ready for operation.

The two engine-generator sets shall be mounted on concrete bases. Chamfer strips shall be installed in the forms to provide beveled corners. Immediately upon removal of forms, all voids shall be neatly filled with cement mortar, irregularities in exposed surfaces shall be removed and minor imperfections finished to the satisfaction of the Inspector. Three-quarter inch pipe sleeves, one foot long, terminating one-half inch below the surface shall be installed and located by means of a bed plate template. One-half inch diameter holding down bolts with four inch ells bent at their lower ends shall be installed in the pipes for fastening the engine-generator set. Hexagonal nuts shall be drawn down to steel lock washers and the set accuragely levelled by means of lead shims.

A 1 1/4 inch diameter exhaust line including twenty-four inches of flexible exhaust tubing 1 11/16 inches inside diameter shall be run from each engine-generator set to the outside of the building, through an exhaust mounting as shown on the drawing. The assembly through the outer wall shall be at least two inches from any woodwork and all other parts of the exhaust line at least eight inches from any woodwork. The exhaust line shall carefully lined up so that no strain is put upon the engine exhaust fitting.

All pipe threads in gasoline line connections shall be well painted with a mixture of the proper consistency of litharge and glycerine.

The recommendations for installation, as set forth in the manual of the company furnishing the engine-generator sets, shall be complied with on points not covered in this specification or otherwise directed.

The fuel tank shall be mounted in the metal cradle furnished by the Government, erected as shown on the drawing, and externally painted with two coats of approved white paint. The cradle shall also be painted two coats of lead colored paint.

Starter batteries shall be installed in sand trays furnished by the Government.

43. Septic Tank and Cesspool - Septic tank to be 6' by 2' 6" by 5' inside, of concrete construction, having 6" side-

walls with 4" baffles. Top to be a 6" concrete slab having a 24" manhole and a 4" vent with perforated top as shown on the drawing. Manhole to be covered by a reinforced concrete slab 32" square by 4" thick having a one inch shoulder 4 1/4" wide around all four sides. One length of 6" vitrified sewer pipe shall be cast in place in the ends of the tank, 3 1/2 feet from the bottom, as shown on the drawing. It is important that these pipes be placed exactly as shown.

Cesspool shall be 4 feet in diameter and extend down to good drainage. It shall be lined with old or broken brick laid without mortar.

Cesspool shall be covered by a 6" concrete slab five feet square, having a 24" manhole and a 4" vent with perforated top as shown on the drawing. Manhole to be covered by a reinforced concrete slab of the same design as the one for septic tank. Four 1/2" reinforcement rods shall be placed in the top as shown on the drawing.

44. Material to be Furnished by the Weather Bureau - Two 2KW engine-generators, one 515-gallon fuel tank and cradle, wind vane and anemometer support, ceiling projector light and support, ceiling projector light switch and pedestal. All other material shall be furnished by the contractor, including all necessary pipe and connections for the pumps, switches, etc., and all other material of whatsoever nature necessary for complete construction of the buildings and other structures mentioned in these specifications or shown on the drawings.

45. Walks - A concrete walk 30" wide shall be laid in front of the office-living quarters buildings, having a short section in the middle leading up to the office steps. A 24" concrete walk shall extend across the rear of the office-living quarters building having sections leading up to the steps of the kitchens and a section running out to the garage and generator shed as shown on the "Arrangement of Buildings" drawing.

46. Use of Lumber - The contractor may use a limited amount of sheathing and other lumber for concrete forms, which is thereafter to be used in the building, provided such lumber is not cut or otherwise damaged so as to render it unsuitable for the purpose for which intended. All lumber so used shall be thoroughly cleaned and dried before being used in the building.

47. Fence -Erect 375 feet barbed wire fence, four and one-half feet high, with a gate across the entrance roadway, along the north, east, and west lines of the Weather Bureau property. Fence shall have four rows of extra heavy galvanized, 4-point

12 1/2 - gauge wire on red cedar, or equal, posts not less than 6" in diameter. Posts to be set about 16 feet apart and at least 24" into the ground. Corner and gate posts shall be not less than 8" in diameter, set 3 feet into the ground and braced with rigid timber diagonal braces from the top of each post. The second post from each corner and from the gate posts shall be guyed by two strands of 12 gauge galvanized wire twisted at the mid-point. Gate to tbe 4 1/2 by 10 feet of 1-inch galvanized steel tubing similar and equal to Sears, Roebuck and Co's., 32 FM 5340 1/3 Junior Farm Gate.